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August 17, 2001

Electronic Delivery and Hand Delivery
Ms. Magalie Roman Salas
Secretary, Federal Communications Commission
445 12th St., SW
Washington, D.C. 20554

Re: Ex Parte Presentations; Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, Gen Docket No. 00-185

Dear Ms. Salas:

On August 15, 2001, representatives from Excite@Home, Darryl Cooper, David Cross, Sunil Daluvoy, Milo Medin, and Mike Wendling, met with Royce Sherlock, John Norton, Tom Horan, Anne Levine, Sarah Whitesell, Michelle Russo, Peggy Greene, Ken Ferree, Mike Lance, Priscilla Wu, William Cox, William Johnson, Holly Berland, (all of the Cable Services Bureau), Trey Hanbury (Common Carrier Bureau), Alan Stillwell (Office of Engineering and Technology) and Bob Cannon (Office of Plans and Policy). As summarized in the attached document, Excite@Home presented various engineering and operational issues related to supporting multiple Internet Service Providers (ISPs) over the cable networks. Excite@Home also discussed its multi-ISP platform. Based on Excite@Home's network assets and intellectual property, this platform offers time-to-market and cost effective solutions that benefit cable operators, as well as ISPs in a multi-service provider environment.

Pursuant to section 1.1206(b)(2) of the Commission's rules, an original and one copy of this letter are being filed with the Office of the Secretary. Copies of the letter are also being distributed on the Commission personnel involved.

Sincerely,

Darryl Cooper
Corporate Counsel

Attachment

cc: Royce Sherlock
John Norton
Tom Horan
Anne Levine
Sarah Whitesell
Michelle Russo
Peggy Greene
Ken Ferree
Mike Lance
Priscilla Wu
William Cox

William Johnson
Holly Berland
Trey Hanbury
Alan Stillwell
Bob Cannon

Multi-ISP Access

Technical Landscape

Excite@Home

FCC Briefing

August 15-16, 2001

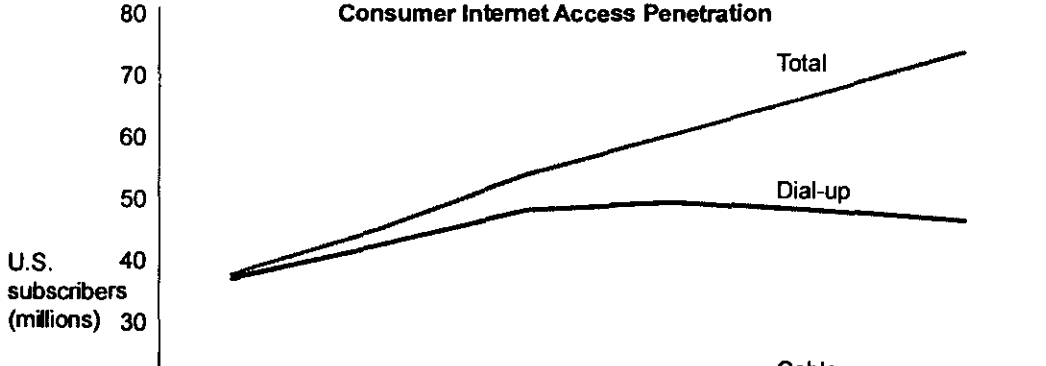
Excite@Home will continue to bring value w/ Multi-ISP

- "Multi-ISP" should increase residential broadband adoption and represents commercial and wholesale business opportunities for Excite@Home.
  - Excite@Home is working to provide our assets and expertise to MSOs and ISPs on commercial terms and economics.
- The Excite@Home infrastructure offers a Time-to-Market and Economical Solution that benefits MSO, ISPs, and Consumers
  - Existing network assets, software, processes, back office and operations can be fully utilized by consumers, MSOs and Multiple ISPs.
  - Changes necessary to support multiple ISP access are less daunting than building a pervasive broadband network and service. .
- Providing a high performance, scalable service in Multiple ISPs environment is a complex undertaking.
  - Excite@Home has invested hundreds of millions of dollars in the broadband platform over the last 4 years
  - Connected to over 24 Million upgraded homes passed in the U.S.
  - Providing service to over 3 Million cable data subscribers in conjunction with over 20 MSOs

We are working to support the cable industry's transition to Multi-ISP with a deployed, reliable, and scalable platform

Multiple ISP Landscape

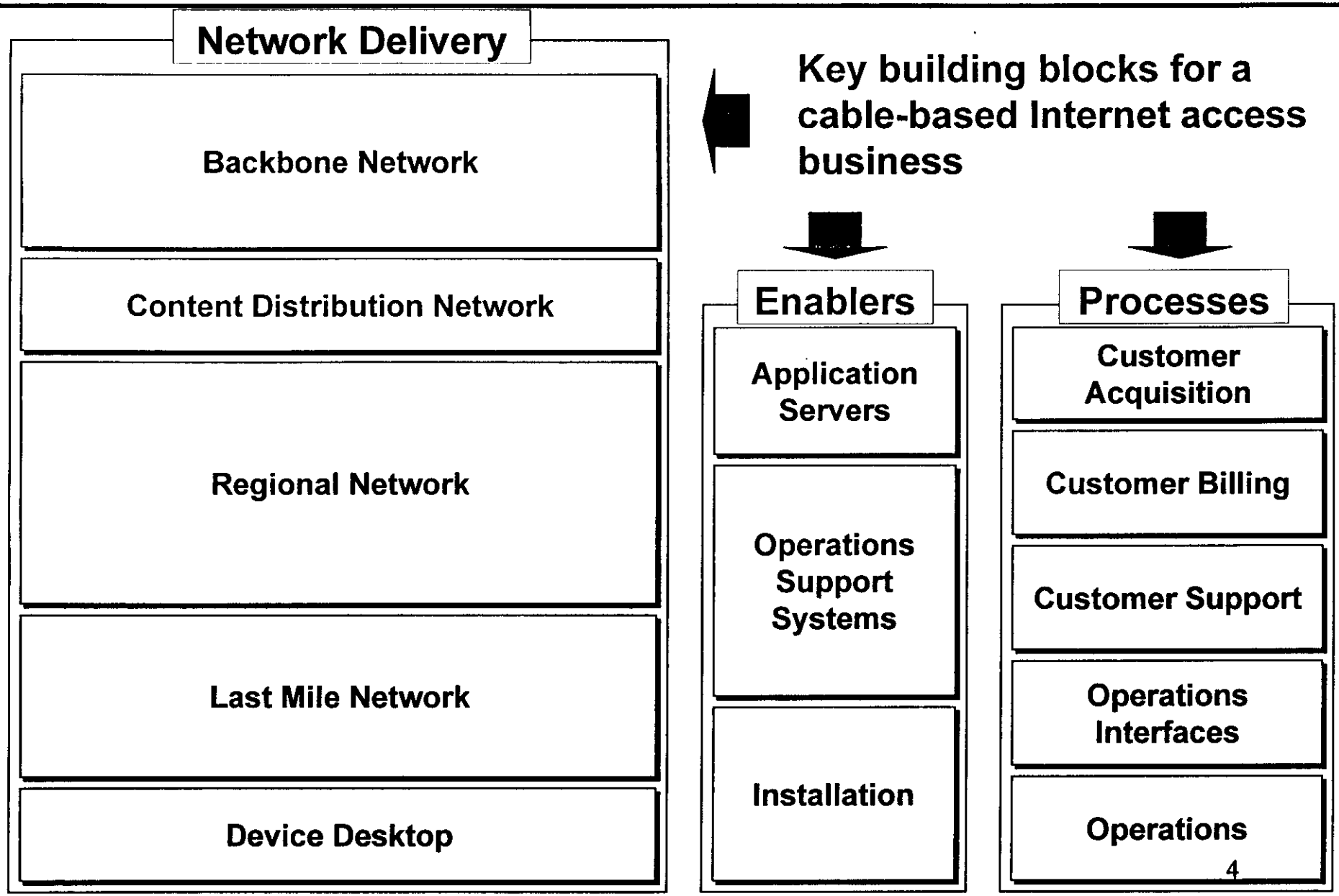
- Increases in cable data subscribers will be substantial
  - Expectations are for over 20 million cable data subscribers in 2003 (Forrester)
  - AOL is predicted to have 4.8 million broadband subs by 2003 (Lehman 3/01)
- Sources of subscribers are varied
  - Consumer dial-up to broadband conversions will accelerate to 18 million subscribers through 2003.
  - "Direct to broadband" subscription rates will continue to increase



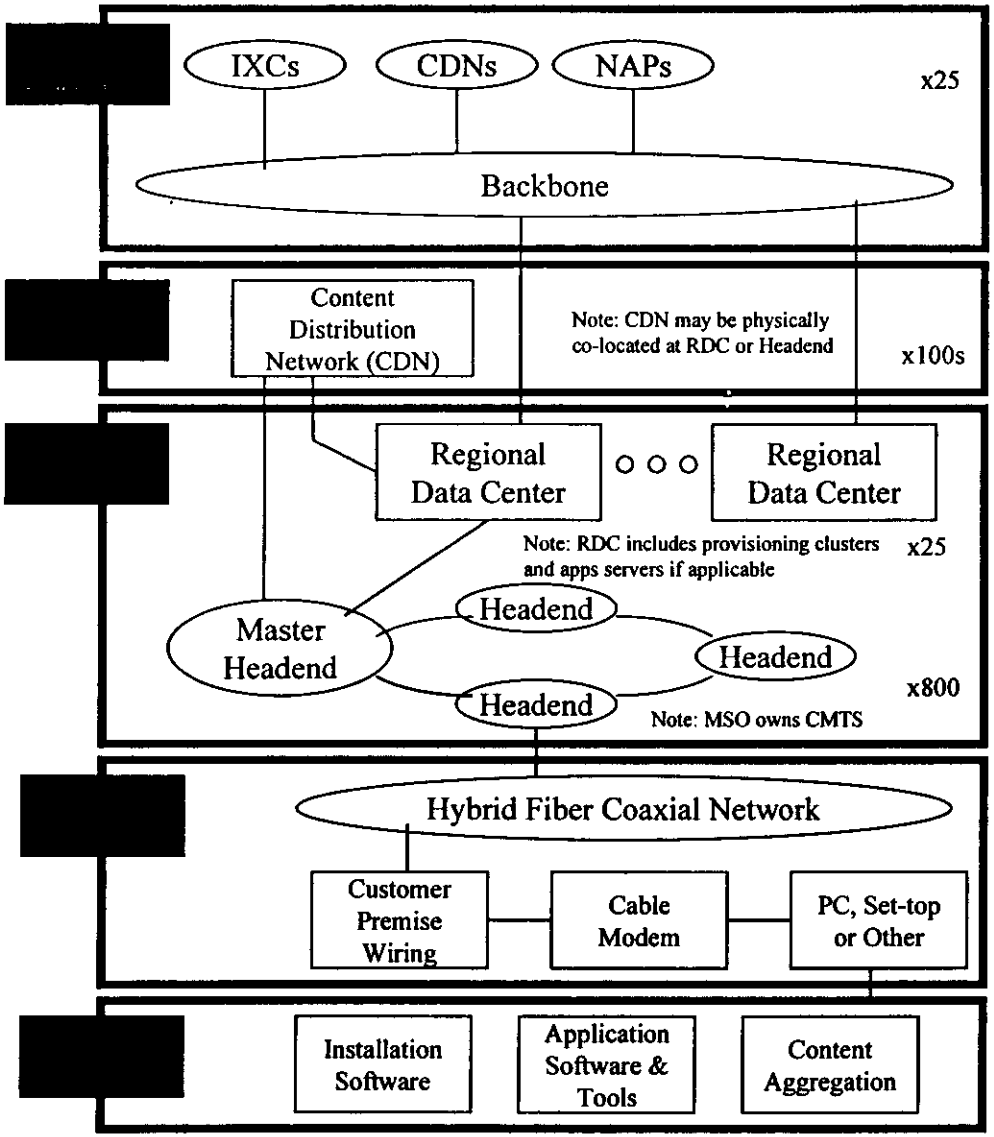
Forrester, 4/99

Excite@Home intends to remain the leader in Broadband IP services.

Cable ISP Overview



MSO@Home Today



Division of Responsibility

MSO

Excite@Home

- Email
- UseNet
- Others

- Configuration Mgt
- Performance Mgt
- Fault Mgt
- Capacity Mgt
- Security Mgt
- Account Mgt

- Remove Filters
- Home wiring
- PC install service

Marketing | Advertising | Retention

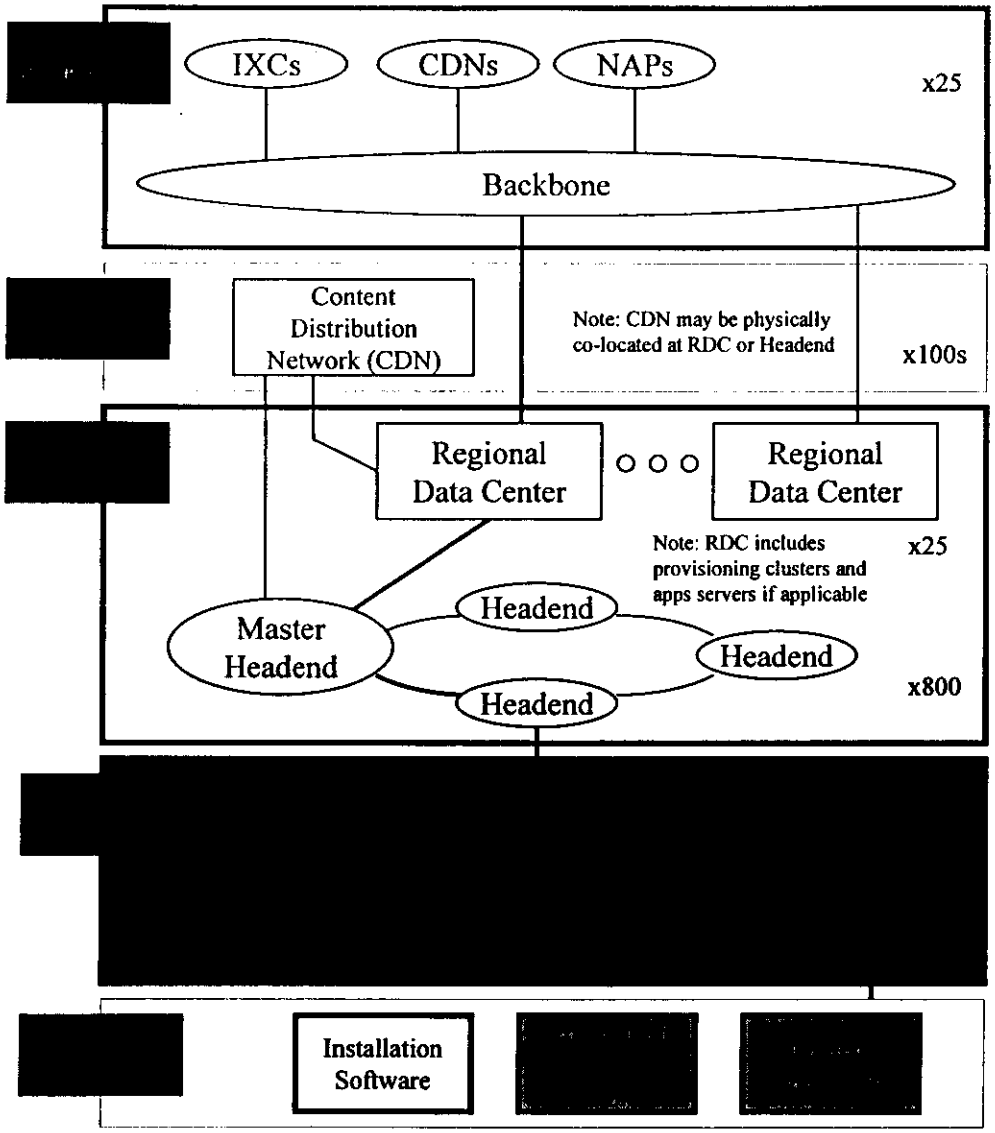
Bundling | Fulfillment | Collection

Self Help | Tier 1 | Tier 2

Configurat-ion | CSR Tools | Accounting

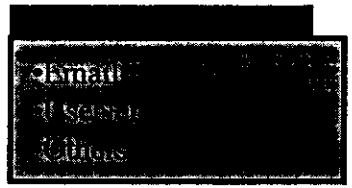
NOC & SOC | Deployment | Server Ops

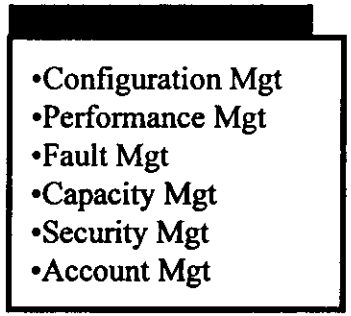
Possible Changes In Functional Roles

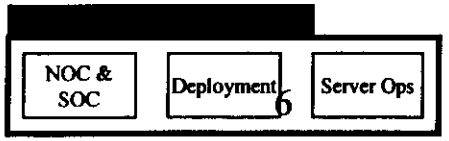


Division of Responsibility

- MSO Core Operations
- MSO/Excite@Home
- ISP Core Operations
- ISP/MSO







Required Incremental Investment

- Other ISPs can substantially leverage Excite@Home's existing infrastructure....
  - IT transaction processing engine for provisioning
  - Scalable network element provisioning platform
  - Network management systems
  - Performance management systems
  - Fault management systems
  - Capacity planning systems
  - Experienced regional deployment team
  - 24x7 network and service operations centers
- However, significant upfront costs need to be incurred:
  - Point of Connection Routers (PBR, NMR, MPLS, etc) with other ISPs
  - Provisioning support for multiple ISPs
  - Customer support tools interface for multiple ISPs
  - Network management support interface for multiple ISPs
  - Usage tracking system for accounting management
  - Integration test lab for multiple ISP interoperability

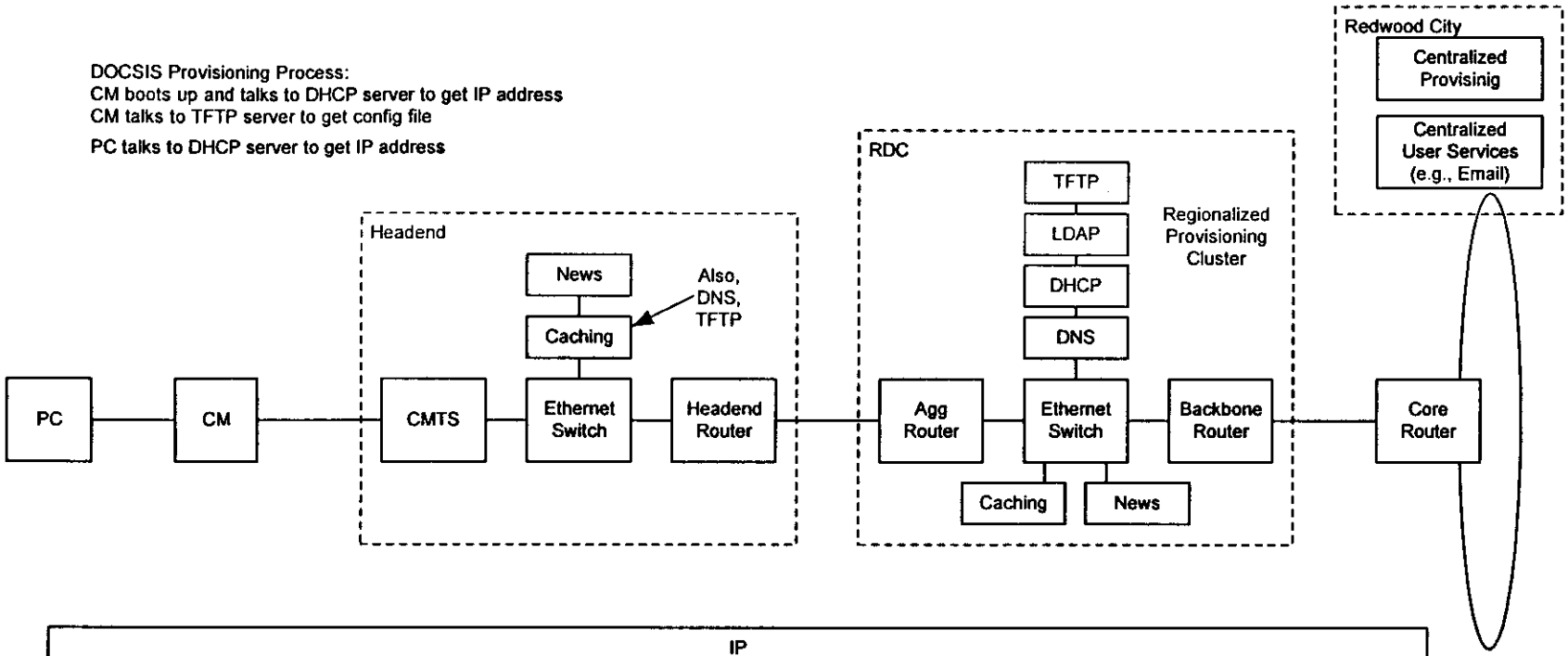
Potential New Services for ISPs

- Premium service possibilities that can be accommodated within 3GB a month of network usage, assuming today's compression technologies[1]
  - Video - "download and play" or "streaming"
    - Four to five hours of VHS quality using MPEG4 *(650 MB each)*
    - Two hours of Digital Cable quality using MPEG4 *(1.35 GB each)*
    - One hour of DVD quality *(4.7 GB each)*
  - Audio
    - Forty-five hours of MP3 quality *(64MB = 1 hour)*
    - Six hours of CD quality *(650 MB = 74 Min.)*
  - Voice over IP
    - 100 hours at 64 kbps, no guarantee of quality
  - Video Conferencing
    - 50 hours at 128kbps, no guarantee of quality
- Many ways for all the industry participants to monetize advanced/premium consumer services

[1]As compression technology improves, the service possibilities will expand commensurately.

End to End High Speed Data Architecture

DOCSIS Provisioning Process:
CM boots up and talks to DHCP server to get IP address
CM talks to TFTP server to get config file
PC talks to DHCP server to get IP address



IP								
Ethernet	DOCSIS		Ethernet	Ethernet	Sonet	Ethernet	Ethernet	WDM/Sonet
Copper	Coax	Fiber	Copper	Copper	Fiber	Copper	Copper	Fiber

Terms:
DNS: Domain Name Service
DHCP: Dynamic Host Configuration Protocol
TFTP: Trivial File Transfer Protocol
LDAP: Lightweight Directory Access Protocol
DOCSIS: Data Over Cable Systems Interface Specification
CMTS: Cable Modem Termination System

Challenges in providing a platform for Multiple ISPs

- **Many network architecture options to consider**
  - Source Based Routing (SBR)
  - Native Mode Routing (NM)
  - Application or TCP stack (VPN) based tunneling
- **Desktop/Client Software issues**
  - Operating System/TCP stack control issues
  - Providing client software to facilitate ISP provisioning.
- **Back office systems**
  - APIs need to be defined for ISP transactions
  - Support for multiple ISPs and multiple service offerings
- **Network provisioning**
  - Dependant on network architecture
  - Provisioning of devices other than cable modems
  - Management of IP address space & routing tables
- **Support Systems**
  - Providing network management views to allow ISP to troubleshoot and police abuse
  - Partitioning of customer care and network information to prevent ISPs from gaining data about competitors customers
  - Capacity Planning/Performance Management/SLA Compliance
- **Advanced Network Features**
  - Quality of Service (QoS)
  - Provisioning of advanced services

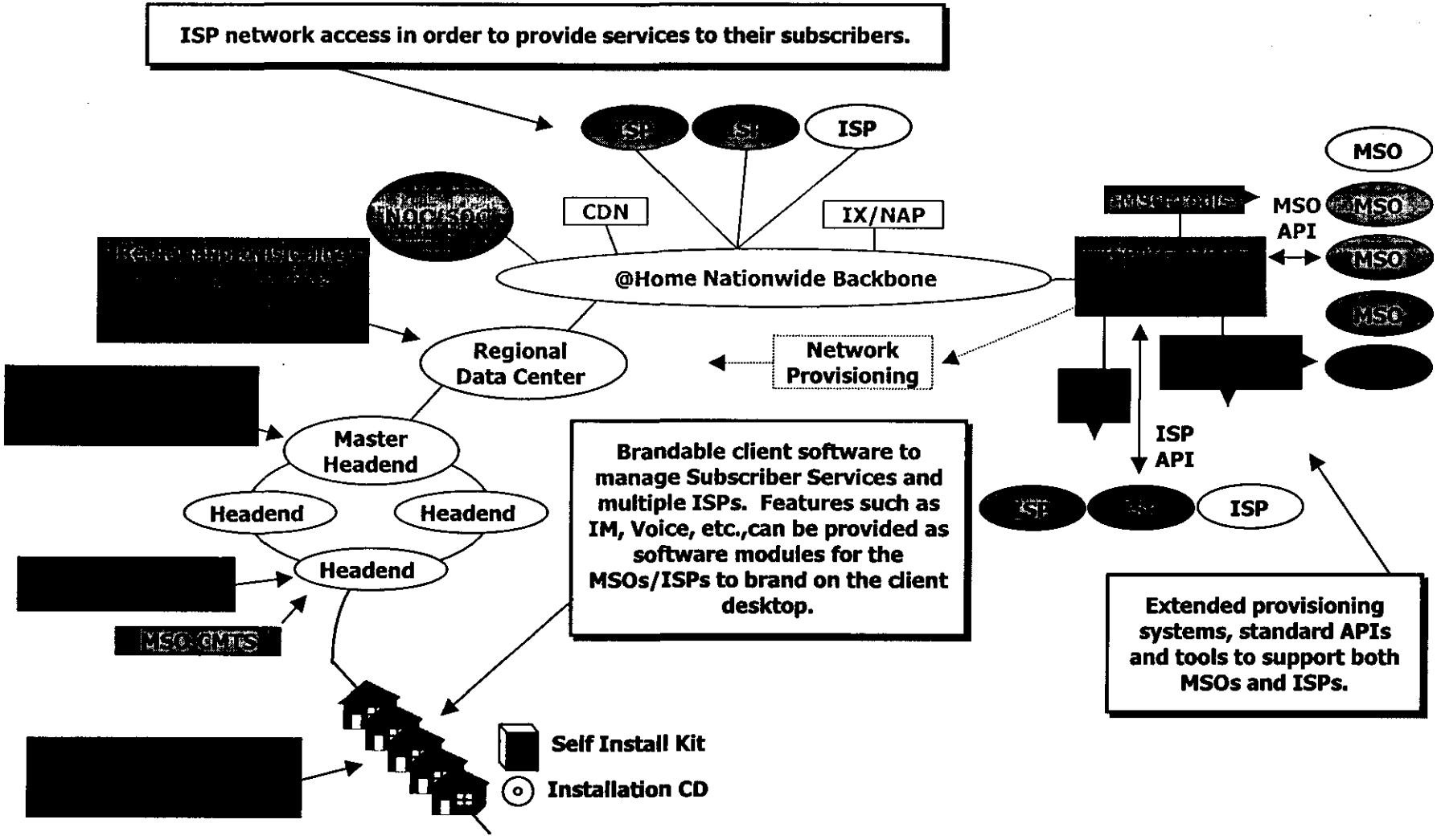
Excite@Home's Multi-ISP Platform

•Excite@Home is actively developing a platform to provide Multi-ISP support.

•Supported features include:

- **Multi-ISP capable network provisioning systems**
- **API interfaces for ISPs and MSOs**
- **Reporting and Billing interfaces for MSOs and ISPs**
- **Multi-ISP IP Address Management**
- **Regional Networks support for Native Mode and Source Based Routing**
- **Usage based monitoring and reporting**
- **Brandable Installation software**
- **Capacity Planning tools for MSOs and ISPs**
- **Customer Care tools for MSOs and ISPs**
- **Network Monitoring tools for MSOs and ISPs**

Excite@Home Network Services that can support Multiple ISPs

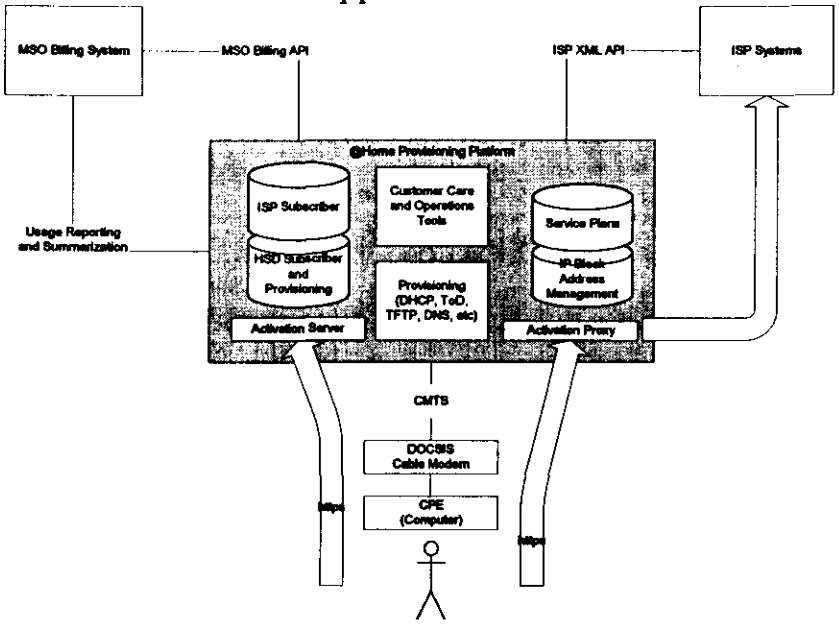


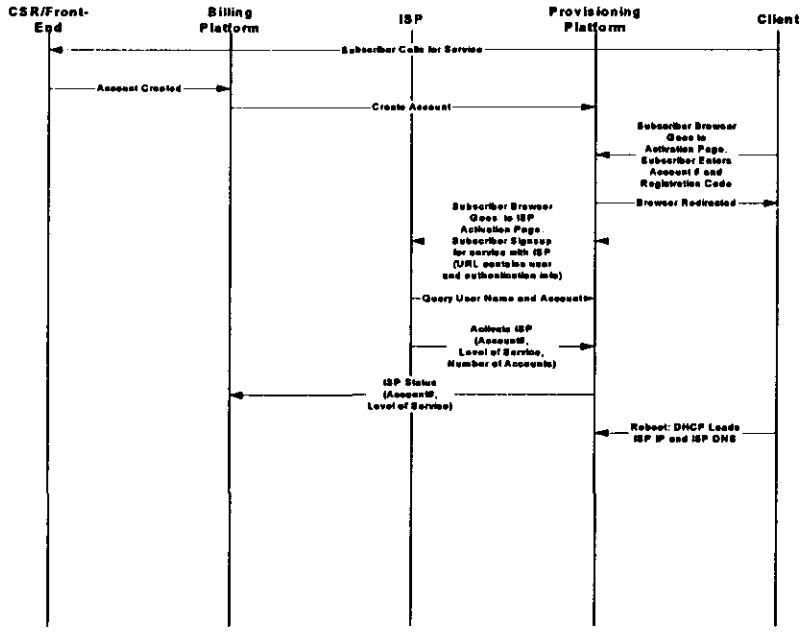
Challenges in providing a platform for Multiple ISPs

- Case Studies
  - Provisioning
  - DHCP
  - IP Address Management
  - Customer Care

Case Study - Back Office Systems Integration

- There are two interdependent aspects to subscriber provisioning:
  - **Network Element Provisioning:** knowledge of network and devices on our network; includes subscriber acquisition and activation
  - **Service provisioning**: knowledge of the account and services/applications associated with the that subscriber (authentication and security).
- Both of these processes need to be extended to support Multi-ISP functionality.
  - Network Element Provisioning is provided today by Excite@Home and is being extended to support a Multi-ISP environment.





Case Study - DHCP

- **Dynamic Host Configuration Protocol (DHCP)-- a standard Internet protocol used to assign IP addresses, name servers, routers, and other important configuration information to a host.**

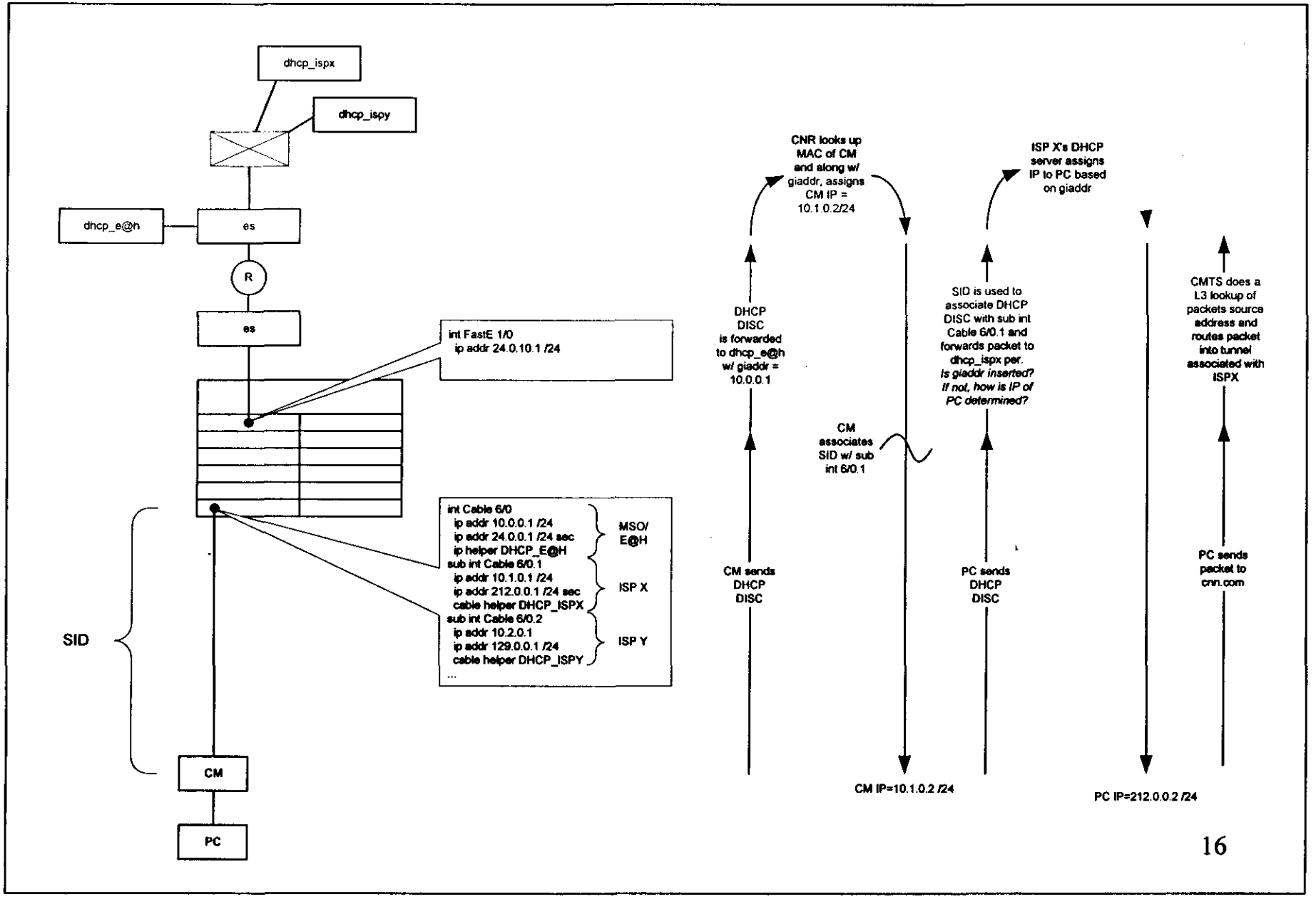
- **Due to it's complexity, DHCP is one of the most challenging aspects of providing a scalable and stable High Speed Data product over the cable network.**

  - DHCP service is very transaction intensive and thus must be kept as simple as possible in order to scale. The DHCP specification has been very successful at maintaining this simplicity but will be challenged in a multi-ISP environment.

- **A device's initial DHCP request doesn't contain any information regarding the subscriber and their choice of service provider and thus can't be directed to an ISP specific DHCP server.**
  - A common (to all ISPs) DHCP server must be used to respond to initial DHCP requests.

- **Multiple-ISP options**
  - A Single DHCP server can be centrally managed on behalf of all ISPs.
    - This reduces the operational complexity and troubleshooting times.
  - Multiple DHCP servers can be configured by respective ISPs
    - Requires tight coordination of provisioning and troubleshooting across all parties.

Case Study - DHCP



Case Study - IP Address Management

- IP Address management is a challenge even in a single ISP environment.
  - Administration of geographically and organizationally (MSOs, ISPs) distributed IP address space needs to be coordinated between local head end equipment, regional and backbone routers and provisioning systems.
  - IP addresses are becoming a scarce quantity which causes ARIN to enforce strict usage guidelines that apply to all ISPs.
  - Subscriber re-addressing is required to deal with node moves and in order to maintain utilization of address space.

- Excite @Home has developed the IP DNS Management Systems (IPDMS)
  - Centralized Administration of Regional IP Subscriber Pools by MSO and ISP
  - Address Space Trending and Capacity Projections
  - Ability for ISPs and MSOs to Customize Services based on IP addresses
  - Integrated with Network Elements such as DHCP, DNS and Cable Modem / PC Provisioning
  - Supports ISP Selection in Native or SBR modes

- There are many models for IP address allocation in a Multi-ISP environment:
  - Bring Your Own - Each ISP applies to ARIN for address space.
  - @Home can apply for IP addresses on behalf of the ISP and assign subscribers out of blocks unique to each ISP.
  - @Home can apply for IP addresses on behalf of the ISP and assign subscribers out of non-unique blocks.

Case Study - Customer Care

- Service Tiers
  - Tier 1 (Customer Service Representative): support usually provided by MSO Customer Support Rep (CSR) and handles sales, administrative issues, billing adjustments, first level troubleshooting, and problem verification
  - Tier 2 (Technical Support): usually provided by E@H Technical Service Rep; usually handles troubleshooting, escalation, and resolution of network problems
  - Tier 3 (Network Operations): usually provided by E@H Operations staff in conjunction with CPE vendors and cable technicians. Primary functions include: proactive network and systems monitoring of headend, regional data centers and backbone, performance monitoring, and analysis of usage statistics.
- Trouble Ticket Process Flows
  - Document, categorize, and prioritize the request using a service ticket
  - Attempt to resolve
  - Wait for resources or information
  - Assign or reassign the request

Customer Care

- Customer Support Tools:

  E@H provides web-based customer support tools which reduces overall customer care costs by empowering the frontline (MSO or ISP) customer support personnel with the tools and information they need to:

  - Troubleshoot
  - Reduce escalations and handoffs
  - Improve customer satisfaction by resolving tickets quickly and efficiently

- Network Diagnostic Tools:
  - CMTS/Cable modem (Matrix)
  - DNS lookup
  - Mail Service and Account
  - Web Hosting and Account
  - DHCP
  - News
  - Abuse Management

- *Example: Email Down for ISP subscriber—steps necessary to process, identify, and repair the problem . . .*

- Network Architecture Options
  - Native and/or Source Based routing
  - Application based or TCP/IP stack based tunneling
  - Regionalized and/or national connection options for ISPs
- Evaluation Criteria
  - Operational simplicity
  - Scalability
  - Broadband application support
  - Time to market
  - Applicability to small markets/small ISPs
  - Cost

- New Interfaces need to be developed for ISPs
  - Interfaces needed for both provisioning and operational support
- Tools to enable troubleshooting are key to success.
- Reducing operational complexity by supporting common systems such as DHCP across all ISPs.

Summary

- Multi-ISP may drive residential broadband adoption and represents a substantial wholesale business opportunity for Excite@Home.

- Providing a high performance, scaled service with Multiple ISPs is a complex undertaking.

- Various Multi-ISP architectures are possible. Industry deployment drivers to keep in mind include: Time to market; Cost; Operational Support Systems; Network stability & scalability

- Excite@Home is leveraging its network assets and intellectual property to build an enabling platform for MSOs and ISPs
    - Solution for regional and local ISPs
    - Facilitate deployment of residential broadband
    - Support diverse business models

- Excite@Home is working to support the cable industry's transition to Multi-ISP with a deployed, reliable, and scalable platform by providing value to MSOs, ISPs and ultimately our shareholders.

FCC Questions, Q&A

- Who maintains and owns the caching and replication services? Where do these servers reside? Essentially, who has ownership and control of these services-- MSO or E@H?
- Significance of Distributed Provisioning Servers.
- E@H has previously stated that the current DHCP servers are not designed to support multiple service providers due to security and authorization concerns. Please explain in greater detail.
- E@H has previously stated tunneling effectively prevents use of caching and distributed content services. Please explain in greater detail.
- Network architecture and design interconnecting the RDCs and Headends.
- In E@H's opinion, what is the logical demarcation point between ISPs and MSOs to support multiple access.
- E@H's opinion on the Boulder trial. What were the results?
- SBR v. NM: advantages and disadvantages of either routing protocol.
- DOCSIS 1.1: Is an additional layer of functionality necessary for 1.1 to support multiple service providers?